

ATTACHMENTSECTION J-9**REQUIREMENTS MANAGEMENT PLAN**

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1. Introduction

The Data Access and Dissemination System (DADS) Program provides tabulation and dissemination services for official demographic and economic information to the Census Bureau.

1.1.Purpose

The purpose of the Requirements Management Plan (RMP) is to describe the process for managing DADS requirements and for maintaining requirements baselines. Requirements changes are anticipated throughout the system life cycle as a result of ongoing Business Operations. Requirements changes support new and updated data products and product specifications and are responsive to end-user concerns. The RMP does not describe the Government's current process to elicit and develop requirements. The RMP focuses on the future requirements management process.

The Government intends, through Government process improvement efforts and contractual arrangements, to leverage the mature requirement management and development process of our Contractor partner and evolve the Government's requirements management process to include requirements development activities. The successful requirements management environment will be effective for all levels (e.g. program, system), categories, and priorities of requirements but not at the expense of efficiency. Escalation and prioritization processes to handle additions, changes, and deletions of requirements will be included in the detailed requirements management process.

1.2.Scope

The scope of the RMP is a subset of the scope of the DADS Change Management Strategy (CMS), which highlights several processes for managing changes to DADS. The RMP focuses on the process for managing planned and unplanned changes to the DADS program, system, and infrastructure requirements, and to the resultant requirements baseline. The Government identified stakeholder needs and operational capabilities and recorded them as DADS program requirements. Program requirements include high-level statements as well as low-level statements and data product specifications. The DADS high-level program requirements are described in Section J-1, Business Requirements Document and include descriptions of DADS business processes and major data products. The BRD describes DADS business processes and major data products and shows the traceability of program requirements to DADS goals and objectives.

2. Elements of Requirements Management

The principal components of the requirements management process are the requirements baseline and the Change Requests (CRs). CRs are used to record and manage changes to a given baseline. New baselines are established upon approval of one or more CRs.

2.1.Requirements Baseline

The DADS requirements development process was used to establish the baseline of tabulation and dissemination requirements. This initial baseline was derived from the

elicitation of stakeholder needs, inputs from Subject Matter Experts (SMEs), and reviews of DADS documentation. The baseline was also derived from evaluations of DADS component systems, including Data Product Production (DPP) and American FactFinder (AFF). The baseline is stored in the Requirements Database (RDB).

2.2.Changes to the Requirements Baseline

Changes to the requirements baseline are proposed via CRs. The CRs are entered into the RDB using the template in Figure 2-1. The figure highlights the primary fields required to capture the details of a given CR. As an example, the figure also specifies the entries for the primary fields. These fields and the corresponding entries are explained in the following subsections.

DADS Change Request (CR) Template		
CR Identifier: (xxxx.yyy.zzz)	0012.003.0045	See Table 2-1
Originator: (Name, Organization, Phone, Email, etc.) John Doe, DADS, 301-763-0000, john.doe@census.gov		See Table 2-2
Submission Date: 3/09/2007	Requested Completion Date: 4/10/2007	
CR Description: The system shall calculate summary files from microdata in PDF		
CR Justification: (Why being requested) PDF format is needed to support BOC mandate		
Source: DADS		See Table 2-3
Service Type: Tabulation		See Table 2-4
Hierarchy: Program High-Level		See Table 2-5
Category: Functional		See Table 2-6
Priority: Mission Critical		See Table 2-7
Impact: Scope, Schedule		See Table 2-8
Status: Approved		See Table 2-9
Requirements Baseline: (to which CR is allocated)	6.7	

Figure 2-1. Primary Fields of the Notional CR Template

2.2.1. Change Request Identifier

Each CR is recorded in the RDB with a unique identifier, as shown in Table 2-1. The identifier corresponds to the requirements hierarchy from Table 2-5 Requirement Hierarchy. Each requirement is uniquely represented by the convention xxxx.yyy.zzz, where xxxx corresponds to a high-level program requirement, yyy corresponds to a

related low-level program requirement, and zzz corresponds to a related system requirement.

This convention is used to maintain traceability between program and system requirements. It necessitates that every low-level program requirement and system requirement be mapped to the appropriate high-level program requirement entered in the RDB.

Table 2-1. CR Identifier

Requirement Hierarchy	Program High-Level	Program Low-Level	System
Unique Identifier	xxxx	yyy	zzz
Example Identifiers (xxxx.yyy.zzz)			
0012	High-level program requirement		
0012.003	Low-level program requirement associated with high-level requirement 0012		
0012.003.045	System requirement associated with program requirement 0012.003		

2.2.2. Change Request Originator

The organizations that can originate CRs are shown in Table 2-2. The table also shows the general responsibilities of the organizations.

Table 2-2. CR Originators

Organization	Responsibilities
Census Bureau Stakeholders	Includes directorates and data providers that request application and data products
DADS staff	Overall responsibility for the requirements management process

2.2.3. Sources of Requirements

DADS requirements originate from several sources as shown in Table 2-3. The details of these requirements are used to complete the fields in the CRs.

Table 2-3. Requirement Sources

Source	Description
General Public	User feedback based on web site experience
Federal Government	Mandates including executive orders, public laws, OMB directives, standards
Dept. of Commerce (DOC)	DOC policies, standards, and guidelines
Census Bureau	New product lines from stakeholder, requirements from internal intermediaries, new/changed business priorities, contract cost/schedule changes, agency policies
Contractor	New system and infrastructure requirements, incidents or defects from system O&M activities

2.2.4. Service Type

DADS requirements are associated with the primary DADS services: tabulation and dissemination, as shown in Table 2-4.

Table 2-4 Service Types

Service	Description
Tabulation	Tabulation is the service by which respondent level data from confidential microdata files are aggregated into approved product formats. Data tabulation products are created from the microdata files that contain data about individual persons, households, or businesses. Data tabulation consists of acquiring product specifications and geographic input files necessary to fully tabulate a data product.
Dissemination	Dissemination is the service by which metadata, product specifications, and geographic input files are acquired to stage a data product. Dissemination includes functions to select, search, print, display, manipulate, and download various components of approved product formats of Census Bureau published data.

2.2.5. Hierarchy of Requirements

The hierarchy of the DADS requirements is presented in Table 2-5. The table presents examples of changes within the hierarchy.

Table 2-5 Requirement Hierarchy

Hierarchy	Examples of Changes
Program High-Level	<ul style="list-style-type: none"> • New product lines (e.g., Industrial Reports for Economic Area) • New/changed business priorities (e.g., IT security, confidentiality) • Contract cost or schedule change (e.g., budget reallocation, data product deployment delay or acceleration) • New/changed Government mandates (e.g., policies, laws, standards, directives)
Program Low-Level	<ul style="list-style-type: none"> • New/changed product format for a given product line (e.g., adding subject tables for American Community Survey) • New/changed business priorities for data deployment • Changed product delivery date (within the same month)
System	<ul style="list-style-type: none"> • System defects found during testing or maintenance • Minor changes to planned product delivery dates (e.g., a few days)
Infrastructure	<ul style="list-style-type: none"> • Server hardware and software changes • Network component and connectivity changes

2.2.6. Requirement Categories

DADS requirements are grouped into mutually exclusive categories, as presented in Table 2-6.

Table 2-6 Requirements Categories

Category	Description
External Interfaces	Interfaces to external systems such as the FTP server
User Access	User interface and access requirements (e.g., role-based, browser type)
Functional	Functional requirements (Requirements Traceability Matrix)
Legal Standards	Federal standards such as Title 13 and Section 508
Internal Standards	Census Bureau standards such as confidentiality and privacy
Quality Standards	Quality requirements (e.g., data accuracy, consistency)
Performance	Performance requirements (e.g., responsiveness, availability)
Security	Security requirements (e.g., secure access, data protection)
Data Content	Data format and content requirements
Operational	Operational requirements (e.g., platform support, disk storage)

2.2.7. Change Request Priorities

CRs will be evaluated in terms of priority to determine the future baselines to which they may be inserted. The priorities are shown in Table 2-7.

Table 2-7 CR Priorities

Priority	Description
Mission Critical	Functions that are critical to meeting the business needs of the Census Bureau and must be implemented with no delay.
Important	Functions, that are important to improving quality, performance, and user satisfaction. Some implementation delay may be tolerated.
Useful	Functions that are useful, nice to have, used infrequently, or may have effective workarounds. Not time critical.

2.2.8. Change Request Impact

The types of impact based on the requested change are shown in Table 2-8.

Table 2-8 CR Impacts

Impact	Description
Scope	Impact to the scope or level of effort
Cost	Impact to cost
Schedule	Impact to the implementation schedule for a system release
Operation & Performance	Impact to the DADS operation and performance
System Interfaces	Impact to the DADS interfaces to external systems
Infrastructure	Impact to the underlying infrastructure that supports DADS

2.2.9. Change Request Status

The progress of each CR will be tracked in the RDB by its status field. The values of the status field are shown in Table 2-9.

Table 2-9 CR Status Values

Status	Description
Proposed	CR that has been received by DADS but has not yet been approved by the CCB
Approved	CR that has been analyzed for cost and schedule impact, and has been approved
Deferred	CR that has not been approved but rather has been deferred to a future date due to funding or timing constraints
Rejected	CR that has been rejected
Baselined	Approved requirement that has been incorporated into the requirements baseline
Allocated	Baselined requirement that has been allocated to a system or data release baseline

2.3.Tools

An initial RDB is being used by the DADS staff as part of the requirements development process to establish the initial requirements baseline. It is being used by the DADS staff to manage requirements changes as well as baseline changes. The RDB contains the CR template for recording and tracking changes. It also contains the Change Request Log that maintains the history of changes.

The Contractor shall establish and maintain automated requirements repository that includes the requirements, tracks requirements by release and version, and is accessible by the Government. The Contractor shall have the capability to provide requirement baseline updates to the Government in a file format that is compatible with the Government's automated requirements repository tool, Telelogic's DOORS®.

3. Requirements Management Process

Requirements management is the process for prioritizing, analyzing, approving, and baselining requirements, as pictured in Figure 3-1. The goals of requirements management are to prioritize and approve requirements changes, manage the resultant changes to the requirements baselines, and maintain requirements traceability throughout the system life cycle.

Proposed changes can originate from Federal mandates, stakeholder requests, user feedback, and Contractor change proposals. The planned and unplanned changes to the program, system, and infrastructure requirements are evaluated as formal Change Requests (CRs), in accordance with the business needs of the DADS program.

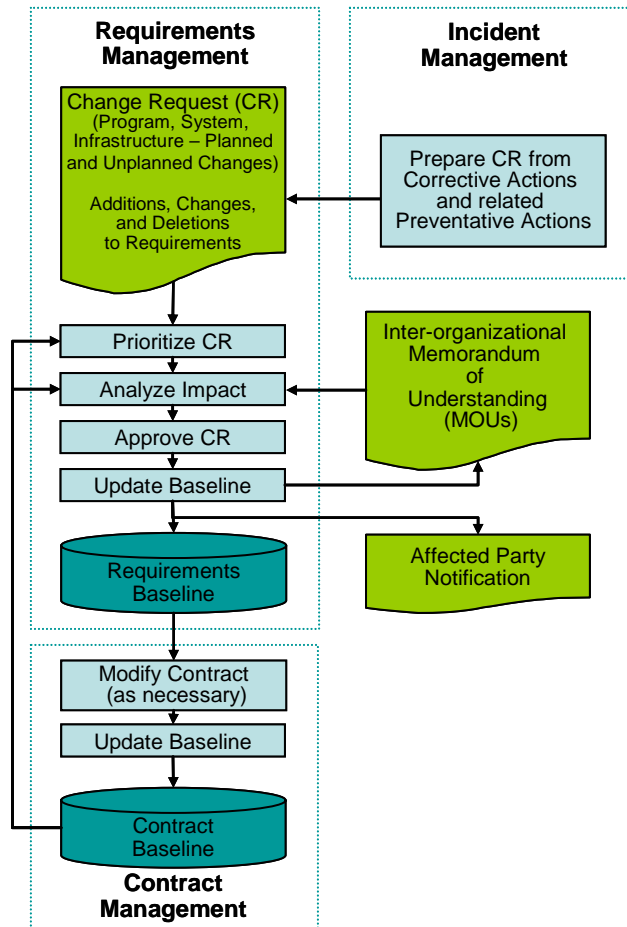


Figure 3-1. Requirements Management Process

The technical authorities for the requirements management process are the DADS staff and the Change Control Board (CCB). The DADS staff manages and conducts the requirements management activities in accordance with the process. The DADS staff works with other Census Bureau organizations and the Contractor to manage CRs, and to ensure their accuracy,

completeness, and traceability. The CCB works with the DADS staff to evaluate and approve CRs for incorporation in the requirements baseline.

3.1. Prioritize Change Request

The Prioritize CR activity is described in Table 3-1. The activity uses the requirements baseline and contract baseline as inputs, along with incidents that are recorded in the incident database. The DADS staff uses these inputs to help establish the priorities for the planned and unplanned CRs.

Table 3-1 Prioritize CR

Element	Details	
Inputs	<ul style="list-style-type: none"> • CRs (Program, System, Infrastructure) <ul style="list-style-type: none"> - Planned changes - Unplanned changes • Requirements baseline • Contract baseline (e.g. schedule, Earned Value, etc.) • Incident database 	
Activities	Government	Contractor
	<ul style="list-style-type: none"> • Verify CR accuracy and completeness • Verify traceability to: <ul style="list-style-type: none"> - Goals and objectives - Related program requirements • Establish CR priority 	<ul style="list-style-type: none"> • Support the Government in selecting, prioritizing and allocating requirements • Update requirements documents
Outputs	<ul style="list-style-type: none"> • CR with all appropriate fields completed <ul style="list-style-type: none"> - Status is “Proposed” - Priority is “Mission Critical”, “Important”, or “Useful” • Updated CR log 	
Reviews	<ul style="list-style-type: none"> • CR review by DADS staff 	
Tools	<ul style="list-style-type: none"> • RDB (CR template and log) 	

3.2. Analyze Impact

The Analyze Impact activity is described in Table 3-2. The DADS staff evaluates planned and unplanned CRs, with analysis from the Contractor to determine their impact to the DADS program, including evaluation to ensure that they are within scope.

Planned CRs are compiled in Performance Work Statements PWSs that are released annually to the Contractor. The Contractor responds to each PWS by submitting a technical proposal and a cost proposal. The proposals describe the technical approach and the cost to implement the planned CRs, and include analyses of the potential impacts to the DADS program. Unplanned CRs are issued to the Contractor at various times during the contract year. The Contractor analyzes the CRs and prepares technical and cost proposals if any impacts are identified. For both planned and unplanned CRs, the Contractor updates the baseline Program Management Plan (PMP) and attachments as needed to reflect any schedule and staffing changes.

Table 3-2 Analyze Impact

Element	Details	
Inputs	<ul style="list-style-type: none"> • CR with completed fields • Contract baselines • Inter-organizational Memorandum of Understanding (MOU) 	
Activities	Government	Contractor
	<ul style="list-style-type: none"> • Request CR analysis from contractor • Analyze impact to quality • Analyze impact to MOUs 	<ul style="list-style-type: none"> • Analyze impacts to: <ul style="list-style-type: none"> - Scope and level of effort - Cost and schedule - System operation and performance - System interfaces and infrastructure - Quality • Prepare technical & cost proposals, if necessary
Outputs	<ul style="list-style-type: none"> • Updated CR with impact analysis • Technical and Cost proposals, if necessary 	
Reviews	<ul style="list-style-type: none"> • CR analysis by contractor 	
Tools	<ul style="list-style-type: none"> • RDB (CR template and log) 	

3.3.Approve Change Request

The Approve CR activity is described in Table 3-3. The CCB participates in this activity to approve, defer, or reject CRs.

Table 3-3 Approve CR

Element	Details	
Inputs	<ul style="list-style-type: none"> • Updated CR with impact analysis • Contractor technical and cost proposal, if submitted as a component of the impact analysis 	
Activities	Government	Contractor
	<ul style="list-style-type: none"> • CCB evaluates CR and/or technical and cost proposals • If approved, proceed to “Update Baseline” (see Section 2.4) • If deferred, record schedule for future review • If rejected, no change action taken • Notify affected parties of CCB decision, including COTR 	<ul style="list-style-type: none"> • N/A
Outputs	<ul style="list-style-type: none"> • CCB decision • Updated CR disposition (i.e. Status as “Approved”, “Deferred”, or “Rejected”) • Affected party notification 	
Reviews	<ul style="list-style-type: none"> • CCB review 	
Tools	<ul style="list-style-type: none"> • RDB (CR template and log) 	

3.4.Update Baseline

The Update Baseline activity is described in Table 3-4. This activity accepts approved CRs and incorporates them into the next requirements baseline.

Table 3-4. Update Baseline

Element	Details	
Inputs	<ul style="list-style-type: none"> • CCB approval decision • Approved CR • Inter-organizational MOUs • Requirements baselines • Contract baselines 	
Activities	Government	Contractor
	<ul style="list-style-type: none"> • Update requirements baseline in RDB, as appropriate • Update inter-organizational MOU as appropriate 	<ul style="list-style-type: none"> • Update baselines, deliverables, and work products as appropriate
Outputs	<ul style="list-style-type: none"> • Updated CR (Status is “Baselined”) • Updated requirements baseline • Updated inter-organizational MOU • Updated affected baselines • Updated deliverables and work products (e.g., System Requirements Specifications, Requirements Traceability Matrix) 	
Reviews	<ul style="list-style-type: none"> • N/A 	
Tools	<ul style="list-style-type: none"> • RDB (CR template and log) 	

Appendix A: Acronyms

AFF	American FactFinder
CCB	Change Control Board
CR	Change Request
DADS	Data Access and Dissemination System
DPP	Data Product Production
MOU	Memorandum of Understanding
PMP	Program Management Plan
PWS	Performance Work Statement
RDB	Requirements Database
RDMP	Requirements Development and Management Plan (Contractor)
RMP	Requirements Management Plan (Government)
RTM	Requirements Traceability Matrix
SME	Subject Matter Expert
SRS	System Requirements Specification